



# Interactive Electronic Technical Manual (IETM)

## NDIA CONFERENCE

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# Interactive Electronic Technical Manual

- History
  - Boeing IETM Leadership
    - U.S. Navy/Marine Corp. Feasibility Study - 1994
    - AH-64D Apache Longbow - Fielded - July 1998
    - F/A-18 E/F SuperHornet - November 1998
    - AH-64D Apache Longbow FMS - March 1999
    - F/A-18 C/D Hornet - October 2001
    - F/A-18 C/D Hornet FMS - 2002
    - Several military and commercial endeavors in-work
    - Meritorious Achievement Award from the American Helicopter Society in May, 1998



## Class I, II, III

- Electronic Technical Manual (ETM)
- Electronic Replication of Paper Manual
- Data Access Expedited by Page Turner and Hyperlinks
- Maintainer Searches for Data
- Mid MMH/FH High False Removals





## Class IV

- Interactive Electronic Technical Manual (IETM)
- Fully Interactive IETM, Provides Needed Data to Maintainer, Leads Maintainer Down the Correct Maintenance Path. Allows for Reduced Training
- Ease of Access to Required Information
- Reduction in MMH
- Low False Removals







## Class V

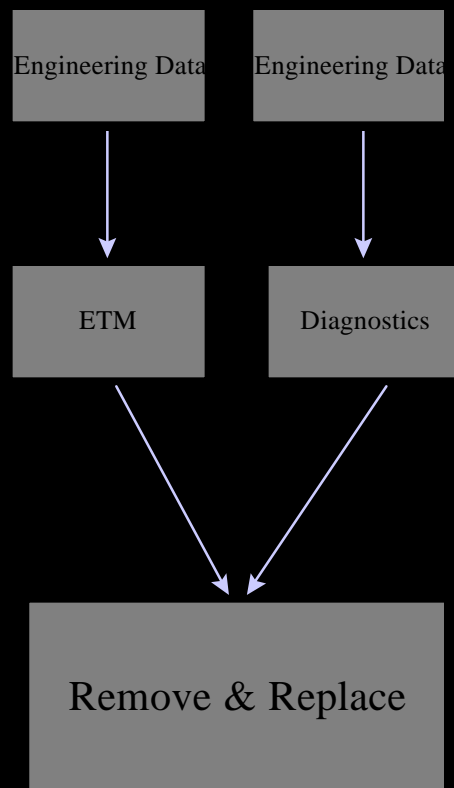
- Class IV IETM and Electronic Infrastructure
- IETM Linked to EQUIP and Maintenance Network
- Integrated with Equipment Diagnostics
- Expedites Troubleshooting, Spares Ordering and Maintenance Planning
- Increases Equipment Availability





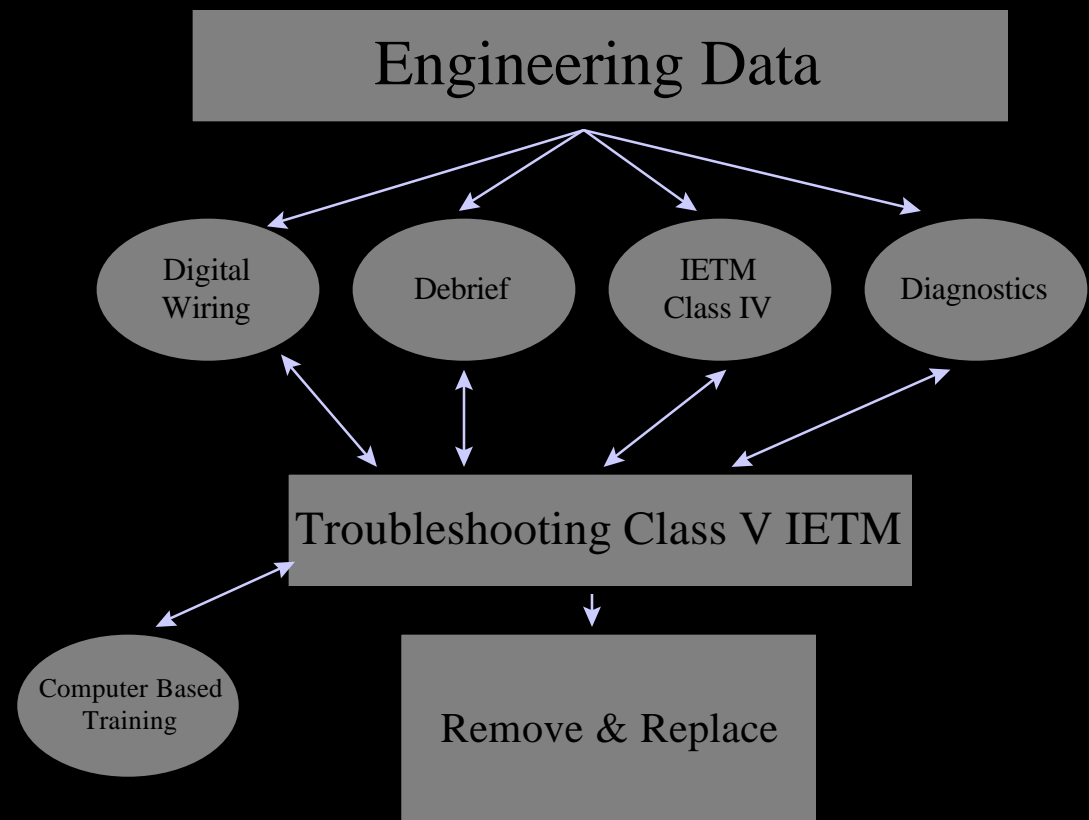
# Interactive Electronic Technical Manual

## Linear Structure



Trail and Error

## Hierarchically Structured



Ambiguity Reduction & Correct Maintenance Action

# Interactive Electronic Technical Manual

- Boeing IETM Capabilities
  - Authoring and End-User
    - Complete fault structure
    - Procedural data
    - Graphics with *Hotspots*
    - Automated linking to external modules (Debrief, wiring system, look-up tables)
    - Expert and Novice modes



# Interactive Electronic Technical Manual

- Boeing IETM Capabilities
  - Authoring and End-User
    - Context filtering by effectivity
    - DBMS
    - Support of multiple authors simultaneously (currently over 60 authors per on two weapon system programs)
    - Web implementation
    - Automated Torque Wrench



# Interactive Electronic Technical Manual

- Studies
    - Data Capture
      - Naval Surface Warfare Center
        - Carderock Division
        - Aviation Maintenance Environment (AME) Cost Benefit Report (May, 1998)
- “Reduced distribution and updating costs reclaim 73% of IETM implementation investment”.



**Fault Ambiguity Reduction**



**Just-In-Time Spares**



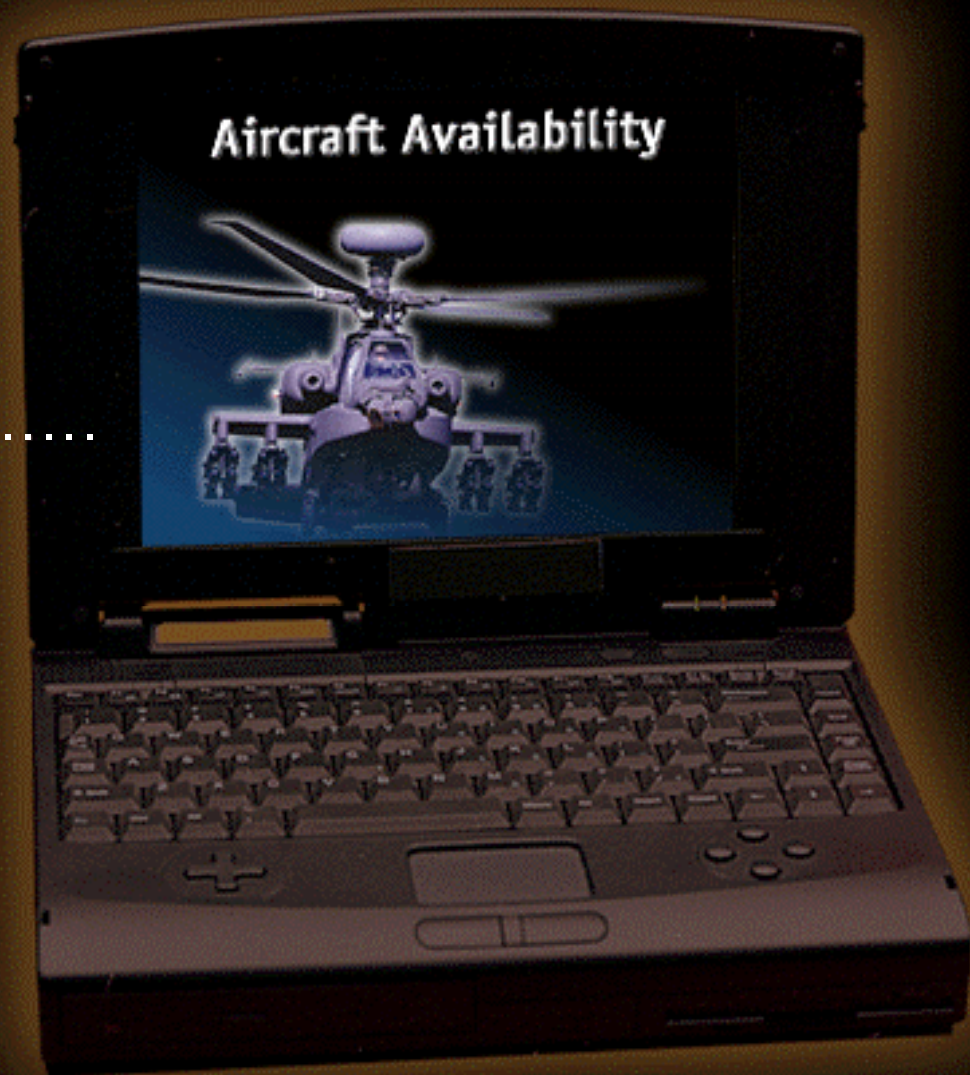
**Mission Capability**



**Reduction in False Removals**



**Maintenance Trends**





# Interactive Electronic Technical Manual

- Studies
  - Data Capture
    - Ft. Hood, TX
      - 1st Battalion, 227th Aviation Regiment
      - FSR and military personnel are starting to measure data
      - Goal is to finish in 90 days
      - Distribution of report and method pending
    - Lemoore, CA
      - OPEVAL
      - Measure accountable data
      -

# Interactive Electronic Technical Manual

- Boeing's IETM is Available for Use
  - Data content development and end-user licensing
  - COTS - Licensing, Training, Maintenance Support, and Cultural Change
  - Data content development and/or data content development and build customer computer hardware and software infrastructure while supporting cultural change

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